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ABSTRACT

Environmental education must be shaped to generate universal involvement in environmental aspects of life, in all political systems. It is absurd for political systems to attempt to adapt ecological factors to fit the underlying political assumptions; political philosophy must become consistent with ecological truths. In the developing nations it is most important to rapidly introduce environmental education for higher education students, who will be most able to influence policy. This-higher education should enable students to see that economic development and ecological conservation practices are not incompatible. For example, marginal lands, which tend to be unsuccessfully converted to agricultural uses, can contribute to a nation's economic development more effectively when alternative uses are planned for the land. National Parks and Game Reserves in some poor tropical nations have demonstrated that these areas, if conserved and managed in the light of ecological principles, can generate much more income than if they were convertd to food production and their long-term usefulness destroyed. (A speech by the Director General of the International Union for Conservation of Nature and Natural Resources--IUCN). (AL)

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ENVIRONMENTAL CONSERVATION FOR DEVELOPMENT AND THE RELEVANT ROLE OF EDUCATION

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Environmental education is advocated in various countries throughout the world as a fundamental contribution for bringing about many of the necessary changes to stop environmental deterioration and foster the type of quality of life that we are all striving for.

However, the results at this stage have been far from encouraging when viewed on the world scale. Approaches have often been emotional, with little scientific basis, heterogeneous and with varying degrees of support. Programmes often lack integration with other disciplines. Even many of the leaders of environmental education fail to speak a common language regarding basic objectives or methodologies. For some it implies teaching from the environment without any preconceived goals or message. They are more concerned with the benefit they can derive from the environment. For others, the emphasis is on becoming involved, with improvement of the environment as a basic goal.

Integration is urgently needed.

We believe in IUCN that such integration would more easily be promoted if environmental conservation is linked with development as a rallying point. Development has always been a popular theme but when it comes to describing its objectives carefully, it has proved

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to be rather elusive, particularly now that growth has become such a controversial subject.

Perhaps it is for this reason that economics as a discipline which can be defined in precise terms has, through its specialized approach, outrun many other disciplines in dealing with development. However, it must be said in all fairness that several outstanding economists have challenged the very basis of many present economic systems, particularly the way costs and benefits are calculated. Moreover, other disciplines are now coming to grips with the development process as a basis for decision-making. And if they haven't yet, they should.

In this context, the proper education of potential leaders is vitally important and this of course brings us back to higher education.

It is for these reasons that in my exposé I have tried to link environmental education with development. I am of course aware that there are many other subjects that are important for our workshop. I hope you will also forgive me that I often refer to the poorer countries of the tropical regions. I feel closely identified with their problems and their aspirations, and there is no escape from the conclusion that only a world-wide programme with world-wide repercussions can bring about the necessary changes - some like to call it 'environmental revolution' - we are trying to generate.

The changing role of development

Traditionally, development has meant growth, and we all know how

much unrestricted growth can be harmful. The problem of development is particularly critical in the so-called 'developing' countries, by far the majority of this world. For many of them, when compared to the more industrialized or richer countries, various 'gaps' are actually widening instead of being bridged. Having been indoctrinated to wish and strive for the same types of material abundance that twentieth-century information media of industrialized countries have told them about, it seems that nothing will stop most of them from building up the same type of consumer-oriented frameworks - and in the process making the same mistakes.

And yet development to free themselves from poverty is at the root of the legitimate aspirations of these countries and nothing can or will stop the process. A realistic approach, and one which is environment-conscious, is to re-direct development in ways which are compatible with wise management of resources.

For the developing countries, let us not forget that the example of richer and more powerful countries will always and unavoidably shape their own policies. If they are to change towards a more environmentally conscious condition, it will only take place when the industrialized countries, at least the great majority of them, re-shape their own policies and action programmes towards the improvement of their own environment. And they better do so rapidly and unequivocally so that the message and its repercussions throughout the world can be clearly understood. Environmental education has a major role to play to achieve these two purposes which are crucial in our present generation.

Development and conservation

Conservation for several years now has been, according to the official IUCN definition of 1969: "management of the resources of the environment - air, water, soil, minerals and living species including man - so as to achieve the highest sustainable quality of human life". Management in this context includes surveys, research, legislation, administration, preservation, utilisation, and implies education and training. It was not always that way, and many of you still remember the romantic and sometimes seemingly unreal aims of our old-time conservationists. Actually on closer scrutiny, the modern definition, when elaborated and qualified, does not exclude some of the old-time values. It has simply broadened the subject to include an overall environment oriented attitude. Most important in this definition is the variable and sometimes elusive concept of quality of life. In fact the blending of social and natural sciences is now becoming much more acknowledged in many conservation programmes throughout the world.

Actually the definition of conservation would be an equally good definition of development in its broadest sense. There need be no conflict between conservation and development, and this is of course the basic idea of IUCN's forthcoming General Assembly and Technical Meetings that will be held in a few days in Banff, also in Canada.

Development in many parts of the world is viewed as a goal, the success of which depends essentially, it is often believed, on the political system. The conservation ingredient is ignored or pushed aside.

I am afraid the issues are mixed up and as a result, unnecessary conflicts have arisen. Conservation can and should become an essential tool for development, regardless of the political systems and here is indeed a most promising line for higher education.

Conservation, development and political systems

Marx, as early as 1844, wrote: "Natural science will one day incorporate the science of man, just as the science of man will incorporate natural science; there will be a single science."* And Engels, in 1881, wrote: "Each conquest of nature takes its revenge on us. Unforeseen consequences of our actions sometimes cancel out the consequences we expect. Thus we are part of it and exist in its midst. Our mastery, he concludes, consists only in the fact that we have advantages over other creatures in that we can know and correctly apply nature's laws."*

If I have brought to mind two quotations by the well-known theoreticians of socialism, it is because I wanted to restate for your consideration what may be one of our major gaps today in the ultimate aims of education in its efforts of getting the right message across.

I am disturbed, for instance, that in many international gatherings which I have lately attended, including of course the recent United Nations Conference on the Human Environment in Stockholm, there was a certain proportion of the participants who confused environmental improvement with social improvement.

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* The Ecologist, Vol. 1, No. 16, October 1971, p.21, p. 20.

The message of social equality and equal opportunities for all is deservedly at the root of many theories that aim at improving conditions of life. This looks quite appropriate and it is natural that it has found its way into the idealistic minds of many people, particularly the young. But what about the other equally or even much more important concept - and one which no one, no country, can really avoid - namely the ultimate, necessary dynamic balance between man and his environment, the carrying capacity of our planet? Is a second revolution to be fought; are both in conflict or can they be reconciled?

Environmental problems as we all know exist at present in many political systems. It is high time that political systems adjust to the ecological realities rather than try to adjust the ecology to political theories.

This, then, is the basic message which has to be carried across, particularly at the higher levels, to promote the cause of properly oriented development. At this stage we must recognize that we still lack some basic philosophies, basic principles and basic guidelines as to how to get it across.

Admittedly every country will have to design its own ways to adjust its socio-economic patterns without forgetting the long-term projections. But beyond that there should be rallying principles and I would hope very much that these principles will be clearly enunciated in the different workshops and other meetings on environmental education that are being planned throughout the world. They certainly will become a very important part of IUCN's own

activities in environmental education. Some of these I will bring to your attention in the hope that they may be useful in some of the later discussions.

Some universal premises regarding development

a) The promotion of diversity

Management for Conservation involves essentially the promotion of diversity; implying the maintenance not only of biological or physical diversity in the rich variety of life and landscapes, in what may be subjectively labelled 'healthy' states (be it a sound and aesthetic landscape, viable population of wild animals, a self-regenerating virgin forest, etc.), but also the socio-cultural diversity such as is now displayed throughout the world by different ethnic groups. In essence it becomes a philosophy directed towards the respect and enjoyment of life in all its diversity including the socio-cultural variations. Such management should enhance quality of life whatever this may mean to different cultural groups. It should preclude catastrophic changes and place the transition towards a harmonious yet dynamic relationship between man and his environment within much easier reach.

b) Decision-making based on preserving the choice of options

The basic premise, and one which again lends itself to management, would be the concept of maintaining and even enhancing the range of options for future generations. This premise obviously affects the direct and indirect decision-makers, and again quality of

life is at the root of such a concept because it implies that the more options in relation to land-use, industrial development, cultural manifestations, etc. there are for future generations the easier it will be for humans to use their abilities and develop their full intellectual capacities.

c) Planning to maintain a dynamic balance between man and his environment

The key factor here is that with great diversity and a good choice of options, decisions can always be taken so as to favour at any time the best possible balance between man and his environment, while at the same time avoiding jeopardizing future decision-making. The assumption is made that there must at all times be an optimum balance, as optimum carrying capacity, when present requirements and future needs have to be considered.

While these three concepts may look highly hypothetical I believe they can be transformed into practical achievements at a level that can be understood by each group, country or region. They can be taught with practical examples at hand. Maintenance of diversity, for instance through the establishment of national parks and similar reserves, in any country where this has been done, has always been proved to be ultimately the wisest possible decision in the light of alternatives that would have transformed these areas through other types of development. It has the ultimate attraction of being far-sighted with a minimum of jeopardy to present generations. The practice of conservation often can be defended for its long-term economic effects,

although it should really be based much more on other considerations because of the many and varied benefits derived, be they aesthetic, educational, scientific, recreational, as well as the vital role that natural areas play in the maintenance of a healthy biosphere.

Who would have dreamed that some day the national parks of East and Central Africa or elsewhere would become such a tremendous asset not only economically because of the inflow of foreign tourists, but also as a matter of pride to many Africans themselves, particularly the younger generations, as can be increasingly shown, for instance, by the striking success of the Kenya wildlife clubs.

Difficulties in getting programmes on environmental education on the move

Agreeing on philosophies and principles is only one step and even if, in a meeting like ours, we do agree, there still is a lot to be done to carry the message across.

Let us come back for a while to the undernourished populations of some of the tropical countries who live in what would be for many of us the most appalling conditions. They have been made aware of their miserable conditions and they want to get away from them.

First we must face the fact that many of them cannot get their own programmes under way alone and that they need the assistance, at least in the initial stages, of better endowed countries.

Moreover, the populations of developing countries are at present mostly rural, in contrast to the richer countries. What happens in these countries regarding environmental problems in the next few years will particularly depend on what will happen to their lands and the way land is used.

Land use is a field to which environmental education at the higher levels has so far dedicated little attention, although the problems are vital and they require a high degree of involvement in environmental action.

And within land use, there is one particularly important yet neglected subject. I refer to the so-called marginal lands, a problem which certainly is not restricted to developing countries only. Marginal lands cover areas which are made up of such diverse types of lands as deserts or semi-deserts, different types of swamps or flooded areas, tropical forest regions with high rainfall, very inaccessible or steep lands, ice-caps, tundras, dunes, high mountain regions, etc. They are called 'marginal' lands today because precisely they are not sufficiently good for agriculture, animal husbandry and sustained yield forestry. Marginal lands cover the largest part of our planet. For many people they represent areas that must be 'opened up', their communications improved, transformed and settled; this philosophy has often led to their destruction. Accessibility does certainly not automatically transform a marginal area into a productive one as the experience of many countries has shown.

One may ask at this stage: are these 'marginal' regions really '<u>marginal</u>' when it comes to their contribution to the economic and social welfare, or what we now call the 'quality of life' of a country or region?

The answer, as we are finding out, sometimes painfully, is clearly <u>no</u>. Certainly their value can and sometimes has been measured

in economic terms particularly when an evaluation is made of their usefulness regarding soil and water conservation, potential for recreation and different types of tourism, notably through the establishment of national parks and equivalent reserves.

The concern for the correct management of marginal areas is not new. It has been at the root of the activities of various international organizations such as our own, the World Wildlife Fund, our sister organisation, the African Leadership Foundation and others. It has become an important activity in current FAO programmes in Africa and Latin America. But as yet it has failed to capture the imagination of decision-makers.

Besides the clearly defined economic values that can be attached to these areas, there are intangible influences that are extremely important. For example, there is their acknowledged value as gene pools for plants and animals; their influence on the macro and micro-climate; their role in keeping a clean and well-balanced environment including the purification of air and water that can be achieved through the complex interaction of plants and animals; their stabilising effect on outbreaks of pests such as insects or rodents by maintaining what are often highly diversified and effectively functioning ecosystems, and so on.

Marginal areas can also be used whenever conveniently accessible for different educational purposes, and many natural areas have been effectively utilised for teaching and demonstrations, particularly regarding biological processes. They offer an important tool for

scientists who study the components of these natural systems and the different factors that interact within the environment, and who derive indispensable data for the understanding of evolution, behaviour and many other scientific disciplines which advance knowledge and ultimately contribute to a better and richer human life.

There is no doubt that many of these marginal areas can yield great economic benefits by providing income through their rational management without destroying the systems. There is clear evidence that in some cases this can be achieved, for instance, by cropping under careful supervision some of the surplus wild animals that are produced and which can be harvested without affecting the producing capital. Areas of spectacular beauty or that contain ecosystems of great interest can be managed successfully as national parks or receive some other type of protected status, and it is quite clear from experience gathered in many places throughout the world that this type of use can provide more income, both direct and indirect, per unit area of surface than any other alternative.

Many other uses can be suggested for natural areas and all of them require the right type of understanding and management so that these natural areas remain as natural as possible and continue to 'produce' for the sake of bettering man's quality of life.

Who is in charge of managing these natural areas? Who are the administrators and the specialists to whom the important task of making the most of these areas is being entrusted? After all, these areas, I repeat, cover most of the land surface of our planet

and in many countries up to eighty per cent and more. Surely their diversity and the various forms of management required, demands numerous and skilled experts.

Yet for practical purposes, these marginal land managers do not exist in most countries. Among the present disciplines the one that possibly comes closest is the forestry profession; but of course it needs a special brand of forester, one who has a good knowledge, and deep appreciation, of the intricate and indirect values of forests and forest lands - the latter being areas which may not necessarily be covered by forests but may nevertheless be managed by foresters. This brand of forester is not too common in the world if seen as a whole, partly because this ecological and environmentally-applied outlook has not sufficiently been stressed within forestry schools. But other professions also have an important part to play, including experts in wildlife, watershed managers, soil conservationists, managers of national parks and equivalent reserves, and of course various kinds of biologists and geographers. Except for a few countries, these areas of specialization in forestry or in other schools are very scarce. In fact, they are virtually non-existent in developing countries. Many forestry schools, for example, are still traditionally geared towards timber production and are hopelessly lagging behind their responsibilities in dealing with environmental management problems. Indeed, the great proportion of managers dealing presently with the so-called marginal lands do not have qualifications fitting them for managing these areas. The deficiency is particularly

distressing in many tropical regions where, under the impact of population growth and the urgent need to produce more food, the greatest pressure is often exerted on natural areas, leading to their speedy destruction.

The few native graduates in those disciplines, even if they are badly needed, often find such unreceptive governmental structures and such difficult conditions under which to work, that they leave their home countries and contribute to the 'brain-drain'.

Perhaps worst of all may be the case where agronomists or cattle specialists or timber-exploitation-oriented foresters, strongly leaning towards their own specialities, are in charge, since the fate of the areas may be worse than if they were managed by someone without an a priori bias towards a certain land-use. Many agronomists, for instance, will strenuously try to prove through costly experiments that fertilisation of the very poor and highly leached soils at present covered by tropical rain forests may yield good agricultural crops. Those trained in animal husbandry also tend to 'sell' their trade by advocating transformation into pastures as a good contribution towards the economy of their country. Foresters too will often promote timber exploitation even if many know in advance that they will be unable to promote sustained yield. How many tropical foresters, for instance, will readily admit that so far, the great majority of regeneration schemes for the highly mixed tropical forests in rather remote areas have so far failed economically

and technically? Almost all 'forestry' practised in these regions should not be called forestry at all but 'resource destruction'.

When we come to formal education, how are we changing established curricula to provide this interdisciplinary link, this ecological approach which has been so often advocated? How will we be able to get away from the feeling that we are 'adding' new courses or new concepts in what are already overcrowded curricula? Will something have to go, for instance other courses in other subjects which also have their ardent defenders? I hope you will answer some of these questions in your deliberations.

On the other hand, who is able to teach, hopefully with examples, and based on adequate research, that promoting a land-use which implies the maintenance of the natural systems and their rational utilization will ultimately achieve a much higher direct and indirect income for the country?

The sad answer is: very few, if any. And very often those who venture to teach such an approach, must rely on far too few data. There is too little experimentation; too few case studies can be used. The plea for changes and research falls on deaf ears and when it comes to decision-making the past routine prevails since land has traditionally been opened for agriculture and animal husbandry and in many countries, few people have heard or would even believe that there is another possibility, one that would promote a different kind of land use based on the maintenance of the diversity found in natural areas and leaving the choice of options open for future generations. And yet this alternative is essential in a shrinking world where

population pressure on natural resources is ever-increasing and where the past cannot anymore be projected into the future. Bringing about changes requires an ecological approach, which too is largely lacking and which is scarcely being taught tody.

The coming years will certainly witness increasing conflicts as to which path to take when it comes to influencing decisions on land-use, whether to increase food production at the cost of destroying marginal areas or to maintain productivity by managing natural areas. At present, conservationists are definitely on the losing side.

Thus there is a dire need for well-qualified managers of these 'marginal' lands which, as has been shown, are not really marginal but should more properly be renamed '<u>natural areas</u>'. Such managers should successfully compete with other professionals to show that their brand of land-use based on the maintenance of natural systems can be as productive or more so than any other alternative. They should rally with others, particularly the growing world of conservation-minded people that are aiming at influencing decision-makers and help shape policies which would bring about the much needed dynamic balance between man and his environment for which we are striving so strenuously.

<u>Conclusion</u>

In conclusion I want to stress again that we need to shape environmental education so as to generate universal involvement in environmental aspects, regardless of political systems.

I would like to stress again: political systems must evolve to adjust to ecological realities since it is absurd to believe that ecological factors may be adapted to political systems.

The promotion of the right kind of development and its many implications may provide an extremely useful tool, particularly in relation to higher education, since it is at the higher echelons that most can be done to influence the development process, and above all, the decision-makers.

From the conservation aspect, I have emphasised the plight of the marginal areas. Needless to say, there are others; but I merely wanted to show this to be an example of an untapped resource which lends itself handsomely to different types of environmental education activities at the higher levels.

Let us hope that eventually environmental education may be intimately linked with the whole relationship between man and his planet so that it can be managed wisely, with the pursuit of quality of life as an ultimate objective.

Buttressed with a rallying philosophy, based on the need to manage rationally our physical and social resources, it should acquire global dimensions, foster solidarity and comprehension, and promote mutual assistance between the haves and the have nots.

31 August 1972